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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/766,789
Filing Date: January 22, 2001
Appellant(s): CHU ET AL.

John V. Biernacki
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed August 21, 2006 appealing from the Office action mailed July 11, 2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The statement identifying the related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,480,194	Sang'udi et al	11-2002
6,750,864	Anwar	6-2004
6,490,719	Thomas	12-2002

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-5, 7-13, 16-17, 20-23,25-26, 30-33, 34-38, 40-47, 50-51, 54-55, 57-58, 61-62 are rejected under 35 U.S.C. 103(a) over Sang'udi et al (U.S. Patent 6,480,194) in view of Anwar (U.S. Patent 6,750,864).

Claim 63 is rejected under 35 U.S.C. 103(a) over Anwar (U.S. Patent 6,750,864) in view of Sang'udi et al (U.S. Patent 6,480,194) and further in view of Thomas (U.S. Patent 6,490,719).

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 1-5, 7-13, 16, 17, 20-23, 25, 26, 30-33, 34-38, 40-47, 50, 51, 54, 55, 57, 58, 61, and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sang'udi et al. (U.S. Patent No. 6,480,194) and Anwar (U.S. Patent No. 6,750,864).

3. Sang'udi renders obvious independent claims 1 and 34 by the following:

"...a computer data store for storing input data that has dimension variables..." at col. 12, lines 13-16, col. 5, lines 49-51, and col. 9, lines 25-27.

"...connected to the data store..." at col. 12, lines 13-16.

"...the input data..." at col. 5, lines 49-51.

"...and a multi-dimension viewer..." at col. 9, lines 25-30.

Sang'udi does not teach the use of target variables, decision trees, splitting data, dimension variable subsets, and producing reports.

4. However, Anwar teaches the use of target variables, decision trees, splitting data, dimension variable subsets, and producing reports as follows:

"...and at least one target variable..." at col. 48, lines 13-26.

"...a decision tree processing module..." at col. 3, lines 10-17.

"...that determines a subset of the dimension variables for splitting..." at col. 44, lines 31-34, col. 36, lines 19-23, and col. 20, lines 38-41.

"...wherein the splitting by the dimension variable subset..." at col. 20, lines 38-41, col. 36, lines 19-23, and col. 44, lines 31-34.

"...predicts the target variable..." at col. 5, lines 59-67, col. 6, line 1, and col. 48, lines 13-26.

"...and wherein the decision tree processing module..." at col. 3, lines 10-17.

"...automatically determines the subset of the dimension variables..." at col. 26, lines 63-65, col. 44, lines 31-34, and col. 36, lines 19-23.

"...that generates a report..." at col. 10, lines 12-17 and col. 48, lines 19-20.

"...using the determined dimension variables subset..." at col. 36, lines 19-23 and col. 44, lines 31-34.

"...and the splitting of the dimension variables..." at col. 20, lines 38-41 and col. 36, lines 19-23.

It would have been obvious to one of ordinary skill at the time of the invention to combine Anwar with Sang'udi to provide splitting algorithms for decision trees in order to determine a set of candidate splits, to use split criteria to determine the best split among candidate splits, and to provide user with a simplified view of the data. Likewise, it would have been obvious to one of ordinary skill at the time of the invention to combine Anwar with Sang'udi to provide target variables in order to use as inputs to the splitting algorithms for decision trees and to generate reports in order to assist the user in viewing the subsets of data. Sang'udi and Anwar teach the use of related systems. They teach the use of computers, the use of databases, the use of networks, the use of multiple dimensions, the use of dimension variables, the use of targets, the use of objects, and the displaying of information.

5. As per claims 2 and 35, the "...dimension variables subset...," is taught by Anwar at col. 36, lines 19-23 and col. 44, lines 31-34
and the "...includes continuous variables...," is taught by Anwar at col. 35, lines 18-21.

6. As per claims 3 and 36, the "...dimension variables subset...," is taught by Anwar at col. 36, lines 19-23 and col. 44, lines 31-34
and the "...includes category-based variables...," is taught by Anwar at col. 1, lines 29-34.

7. As per claims 4 and 37, the "...selector module so that a user can alter...," is taught by Sang'udi at col. 6, lines 10-11 and col. 13, lines 60-62
and the "...which dimension variables to include in the subset...," is taught by Anwar at col. 36, lines 19-23 and col. 44, lines 31-34.

8. As per claims 5 and 38, the "...at least one statistic measure is provided to the user...," is taught by Anwar at col. 12, lines 41-45,
the "...that is indicative of how well the splitting of the dimension variables...," is taught by Anwar at col. 19, lines 28-31, col. 20, lines 38-41, and col. 36, lines 19-23,
and the "...predicts the target variable...," is taught by Anwar at col. 5, lines 59-67, col. 6, line 1, and col. 48, lines 13-26.

9. As per claims 7 and 40, the "...selector module so that a user can alter values...," is taught by Sang'udi at col. 6, lines 10-11 and col. 13, lines 60-62,
the "...at which the input data...," is taught by Sang'udi at col. 5, lines 13-16,
and the "...is split by the decision tree processing module...," is taught by Anwar at col. 20, lines 38-41 and col. 3, lines 10-17.

10. As per claims 8 and 41, the "...input data set...," is taught by Sang'udi at col. 5, lines 13-16 and col. 6, lines 3-6,

the "...includes a plurality of dimension variables...," is taught by Sang'udi at col. 4, lines 61-64,

and the "...and a single target variable...," is taught by Anwar at col. 48, lines 13-26.

11. As per claims 9 and 42, the "...input data set...," is taught by Sang'udi at col. 5, lines 13-16 and col. 6, lines 3-6,

the "...includes a plurality of dimension variables...," is taught by Sang'udi at col. 4, lines 61-64,

and the "...and a plurality of target variables...," is taught by Anwar at col. 48, lines 13-26.

12. As per claims 10 and 44, the "...decision tree processing module splits...," is taught by Anwar at col. 3, lines 10-17 and col. 20, lines 38-41,

the "...input data into groups...," is taught by Sang'udi at col. 8, lines 13-16 and col. 14, lines 30-33,

the "...wherein the mufti-dimension viewer...," is taught by Sang'udi at col. 9, lines 25-30,

and the "...generates a report using the groups...," is taught by Anwar at col. 10, lines 12-17, col. 48, lines 19-20, and col. 14, lines 29-30.

13. As per claims 11 and 45, the "...decision tree processing module...," is taught by Anwar at col. 3, lines 10-17,

the "...uses a competing initial splits approach...," is taught by Anwar at col. 20, lines 38-44 and col. 44, lines 1-4,

and the "...to determine a subset of the dimension variables...," is taught by Anwar at col. 44, lines 31-34 and col. 36, lines 19-23.

14. As per claims 12 and 46, the "...initial split variable...," is taught by Anwar at col. 41, lines 1-4 and col. 20, lines 38-44,

the "...is indicated as most important variable...," is taught by Anwar at col. 23, lines 2-4 and col. 18, lines 31-34,

and the "...in predicting the target variable...," is taught by Anwar at col. 5, lines 59-67, col. 6, line 1, and col. 48, lines 13-26.

15. As per claims 13 and 47, the "...second split variable...," is taught by Anwar at col. 16, lines 37-39 and col. 20, lines 38-44,

the "...is indicated as second most important variable...," is taught by Anwar at col. 16, lines 37-39, col. 23, lines 2-4, and col. 18, lines 31-34,

and the "...in predicting the target variable...," is taught by Anwar at col. 5, lines 59-67, col. 6, line 1, and col. 48, lines 13-26.

16. As per claims 16 and 50, the "...generated report is viewed...," is taught by Anwar at col. 10, lines 12-17, col. 48, lines 19-20, and col. 11, lines 45-47,

the "...substantially adjacent to the dimension variables subset...," is taught by Anwar at col. 10, lines 43-48, col. 36, lines 19-23, and col. 44, lines 31-34,

and the "...and the splitting values of the dimension variables subset...," is taught by Anwar at col. 21, lines 9-13, col. 36, lines 19-23, and col. 44, lines 31-34.

17. As per claims 17 and 51, the "...report has a format...," is taught by Anwar at col. 48, lines 19-20 and col. 48, lines 45-48,

the "...selected from the group consisting of a textual report format...," is taught by Anwar at col. 48, lines 6-8, col. 48, lines 19-20, and col. 48, lines 45-48,

the "...tabular report format...," is taught by Anwar at col. 27, lines 1-2, col. 48, lines 19-20, and col. 48, lines 45-48,

the "...graphical report format...," is taught by Anwar at col. 16, lines 34-37, col. 48, lines 19-20, and col. 48, lines 45-48,

and the "...and combinations thereof...," is taught by Anwar at col. 7, lines 60-67.

18. As per claims 20 and 54, the "...user selects a type of summary statistics...," is taught by Anwar at col. 7, lines 47-51, col. 10, lines 17-18, and col. 12, lines 36-38,

the "...to view the determined dimension variables subset...," is taught by Anwar at col. 10, lines 11-16, col. 36, lines 19-23, and col. 44, lines 31-34,

and the "...and the splitting of the dimension variables...," is taught by Anwar at col. 21, lines 9-13 and col. 36, lines 19-23.

19. As per claims 21 and 55, the "...model repository for storing a model...," is taught by Anwar at col. 32, lines 9-12 and col. 7, lines 46-55,

the "...that contains the dimension variables...," is taught by Sang'udi at col. 4, lines 61-64,

and the "...and splitting values of the dimension variables...," is taught by Anwar at col. 20, lines 57-60 and col. 36, lines 19-23.

20. As per claim 22, the "...decision tree processing module splits...," is taught by Anwar at col. 3, lines 10-17 and col. 20, lines 38-41,

the "...input data...," is taught by Sang'udi at col. 5, lines 13-16,

the "...into a first set of groups...," is taught by Anwar at col. 15, lines 22-25, col. 9, lines 57-60, and col. 14, lines 29-32,

the "...according to first splitting rules to form a first model...," is taught by Anwar at col. 15, lines 22-25, col. 20, lines 38-41, col. 37, lines 27-30, and col. 7, lines 46-55,

the "...wherein the decision tree processing module splits...," is taught by Anwar at col. 3, lines 10-17 and col. 20, lines 38-41,

the "...different input data...," is taught by Sang'udi at col. 5, lines 13-16,

the "...into a second set of groups...," is taught by Anwar at col. 15, lines 22-25, col. 9, lines 57-60, and col. 14, lines 29-32,

the "...according to second splitting rules to form a second model...," is taught by Anwar at col. 15, lines 22-25, col. 20, lines 38-41, col. 37, lines 27-30, and col. 7, lines 46-55,

the "...wherein the model repository...," is taught by Anwar at col. 32, lines 9-12 and col. 7, lines 46-55,

the "...includes a splitting rules index...," is taught by Anwar at col. 20, lines 38-41, col. 37, lines 27-30, and col. 22, lines 34-37,

and the "...to store which splitting rules are used with which model...," is taught by Anwar at col. 32, lines 9-12, col. 20, lines 38-41, col. 37, lines 27-30, and col. 7, lines 46-55.

21. As per claim 23, the "...splitting rules index...," is taught by Anwar at col. 20, lines 38-41, col. 37, lines 27-30, and col. 22, lines 34-37,

the "...is searched in order to locate a model...," is taught by Anwar at col. 36, lines 1-2 and col. 7, lines 46-55,

and the "...stored in the model repository...," is taught by Anwar at col. 32, lines 9-12 and col. 7, lines 46-55.

22. As per claims 25 and 57, the "...search request is provided over a computer network...," is taught by Anwar at col. 36, lines 1-2 and col. 32, lines 19-21,

the "...to retrieve the first model...," is taught by Anwar at col. 38, lines 1-2, col. 15, lines 22-25, and col. 7, lines 46-55,

and the "...from the model repository...," is taught by Anwar at col. 32, lines 9-12 and col. 7, lines 46-55.

23. As per claims 26 and 58, the "...computer network is an Internet network...," is taught by Sang'udi at col. 12, lines 38-40.

24. As per claims 30 and 61, the "...data mining application...," is taught by Anwar at col. 5, lines 42-47,

the "...provides construction of a process flow diagram...," is taught by Anwar at col. 5, lines 59-67, col. 6, line 1, col. 24, lines 26-28, col. 37, lines 31-33, and col. 46, lines 12-17,

the "...wherein the process flow diagram includes nodes...," is taught by Anwar at col. 24, lines 26-28, col. 37, lines 31-33, col. 46, lines 12-17, and col. 21, lines 9-14,

the "...representative of the input data...," is taught by Sang'udi at col. 5, lines 13-16,

and the "...and a variable configuration module...," is taught by Anwar at col. 12, lines 13-21.

25. As per claims 31 and 62, the "...activated variable configuration module node...," is taught by Anwar at col. 47, lines 8-10, col. 12, lines 13-21, and col. 20, lines 57-60,

the "...provides a graphical user interface...," is taught by Anwar at col. 5, lines 42-47,

the "...within which a user can alter...," is taught by Sang'udi at col. 6, lines 10-11 and col. 13, lines 60-62,

the "...which dimension variables to include in the subset...," is taught by Anwar at col. 36, lines 19-25 and col. 44, lines 31-44.

26. As per claim 32, the "...process flow diagram...," is taught by Anwar at col. 24, lines 26-28, col. 37, lines 31-33, and col. 46, lines 12-17,

the "...further includes a node representative of the decision tree processing module...," is taught by Anwar at col. 21, lines 9-14,

the "...that has a competing initial splits approach...," is taught by Anwar at col. 20, lines 38-44 and col. 21, lines 9-14,

and the "...for determining the subset of the dimension variables...," is taught by Anwar at col. 44, lines 31-44 and col. 36, lines 19-25.

27. As per claim 33, the "...process flow diagram...," is taught by Anwar at col. 24, lines 26-28, col. 37, lines 31-33, and col. 46, lines 12-17,

the "...further includes a node representative of the decision tree processing module...," is taught by Anwar at col. 21, lines 9-14,

the "...that has a non-competing initial splits approach...," is taught by Anwar at col. 22, lines 5-7 and col. 21, lines 9-14,

and the "...for determining the subset of the dimension variables...," is taught by Anwar at col. 44, lines 31-44 and col. 36, lines 19-25.

28. As per claim 43, the "...using a decision tree algorithm...," is taught by Anwar at col. 3, lines 10-17,

the "...to determine the subset of the dimension variables by which to split...," is taught by Anwar at col. 21, lines 9-14, col. 41, lines 31-44, and col. 20, lines 38-41,

and the "...input data...," is taught by Sang'udi at col. 8, lines 13-16.

29. Claims 14, 15, 48, and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sang'udi and Anwar as applied to the claims above, and further in view of Chickering (U.S. Patent No. 6,505,185).

As per claims 14 and 48, the "...decision tree processing module...," is taught by Anwar at col. 3, lines 10-17,

the "...of the input data...," is taught by Sang'udi at col. 8, lines 13-16,

but the "...generates binary splits...," is not taught by either Sang'udi or Anwar.

However, Chickering teaches the use of binary splits as follows:

"...Specifically, the binary split is considered that corresponds to the intervals (low, m) and [m, high), where m is the mean value for X in the training data that is relevant to L..." at col. 7, lines 42-44.

It would have been obvious to one of ordinary skill at the time of the invention to combine Chickering with Sang'udi and Anwar to provide binary splits in order provide two data sets with one set with values less than a specified value and the other set with

values greater than or equal to that value to assist the user in visualizing the data. Sang'udi, Anwar, and Chickering teach the use of related systems. They teach the use of computers, the use of networks, the use of multiple dimensions, the use of dimension variables, the use of targets, the use of objects, and the displaying of information and Anwar and Chickering teach the use decision trees.

30. As per claims 15 and 49, the "...decision tree processing module generates splits...," is taught by Anwar at col. 3, lines 10-17 and col. 28, lines 38-41, the "...of the input data...," is taught by Sang'udi at col. 8, lines 13-16, and the "...that are other than binary splits...," is taught by Chickering at col. 8, col. 25-34.

31. Claims 18, 19, 27, 28, 52, 53, 59 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sang'udi and Anwar as applied to the claims above, and further in view of Chaudhuri et al. (U.S. Patent No. 6,212,526).

As per claims 18 and 52, the "...selects one of the report formats in order to view...," is taught by Anwar at col. 7, lines 45-46, col. 48, lines 19-20, col. 7, lines 21-25, and col. 11, lines 45-47,
the "...determined dimension variables subset...," is taught by Anwar at col. 36, lines 19-25 and col. 44, lines 31-44,
the "...and the splitting of the dimension variables...," is taught by Anwar at col. 21, lines 9-14,
but the "...marketing analyst...," is not taught by either Sang'udi or Anwar.

However, Chaudhuri teaches having marketing analysts as users as follows:

"...Using human experts such as statisticians or domain experts (such as data analysts, engineers, or marketing experts) to build classifiers based on existing data is expensive and may not be accurate especially for problems involving large data sets that have a multitude of fields..." at col. 1, lines 60-64.

It would have been obvious to one of ordinary skill at the time of the invention to combine Chaudhuri with Sang'udi and Anwar to have marketing analysts to use the system in order provide a means marketing analysts to view large volumes of data in a meaningful manner. Sang'udi, Anwar, and Chaudhuri teach the use of related systems. They teach the use of computers, the use of databases, the use of networks, the use of multiple dimensions, the use of targets, the use of objects, and the displaying of information and Anwar and Chaudhuri teach the use decision trees.

32. As per claims 19 and 53, the "...input data includes more than fifty dimension variables...," is taught by Sang'udi at col. 5, lines 49-51 and col. 9, lines 25-30,

the "...wherein the determined dimension variables subset includes less than seven dimension variables that are viewed...," is taught by Anwar at col. 36, lines 19-25, col. 44, lines 31-44, and col. 11, lines 45-47,

and the "...by the marketing analyst....," is taught by Chaudhuri at col. 1, lines 60-64.

33. As per claims 27 and 59, the "...model repository...," is taught by Anwar at col. 32, lines 9-12 and col. 7, lines 46-55,

the "...includes a plurality of specialty splitting rules indices...," is taught by Chaudhuri at col. 1, lines 60-64, col. 7, lines 25-29, col. 18, lines 6-10, and col. 11, lines 55-58,

and the "...that are used to locate a model stored in the model repository...," is taught by Anwar at col. 24, lines 64-67, col. 32, lines 9-12, and col. 7, lines 46-55.

34. As per claims 28 and 60, the "...specialty splitting rules indices are indices...," is taught by Chaudhuri at col. 1, lines 60-64, col. 7, lines 25-29, col. 18, lines 6-10, and col. 11, lines 55-58,

the "...selected from the group consisting of marketing specialty splitting rules indices...," is taught by Chaudhuri at col. 1, lines 60-64, col. 7, lines 25-29, col. 18, lines 6-10, and col. 11, lines 55-58,

the "...sales specialty splitting rules indices...," is taught by Anwar at col. 16, lines 28-32, col. 20, lines 38-41, col. 37, lines 27-30, and col. 22, lines 34-37,

and the "...and combinations thereof...," is taught by Anwar at col. 7, lines 60-67.

35. Claims 24 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sang'udi and Anwar as applied to claims 1 and 34 above, and further in view of Lawler et al. (U.S. Patent No. 5,930,798).

As per claims 24 and 56, the "...model repository...," is taught by Anwar at col. 32, lines 9-12 and col. 7, lines 46-55,

the"...diagram level storage means...," is taught by Anwar at col. 46, lines 12-17, col. 12, lines 36-38, and col. 32, lines 9-12,

the "...and a model level storage means...," is taught by Anwar at col. 7, lines 46-55, col. 12, lines 36-38, and col. 32, lines 9-12,

the "...for storing the first and second models...," is taught by Anwar at col. 32, lines 9-12 and col. 7, lines 46-55,

but the "...includes a project level storage means...," is not taught by either Sang'udi or Anwar.

However, Lawler teaches the use of project levels as follows:

"...A further complication is that project level forecasts frequently require data obtained from different software tools..." at col. 1, lines 52-54.

It would have been obvious to one of ordinary skill at the time of the invention to combine Lawler with Sang'udi and Anwar to use a project level in order to provide a means of preparing project level forecasts. Sang'udi, Anwar, and Lawler teach the use of related systems. They teach the use of computers, the use of databases, the use of networks, the use of objects, and the displaying of information, and Anwar and Lawler teach the use of models and using the models for making decisions.

36. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sang'udi and Anwar as applied to claim 1 above, and further in view of Brown ("Indexing HTML files").

As per claim 29, the "...model repository...," is taught by Anwar at col. 32, lines 9-12 and col. 7, lines 46-55,

the "...with a connection to the splitting rules index...," is taught by Anwar at col. 20, lines 38-41, col. 37, lines 27-30, and col. 22, lines 34-37,

but the "...includes a mini-index means...," is not taught by either Sang'udi or Anwar. However, Brown teaches the use of mini-indexes as follows:

"...You could do the same thing in HTML by coding the common entry to point to a "mini-index" of the topics associated with it..." at paragraph 6.

It would have been obvious to one of ordinary skill at the time of the invention to combine Brown with Sang'udi and Anwar to use mini-indexes in order to provide a quick-search capability for the tree-type index and gain wider acceptance of the system.

37. Claim 63 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anwar (U.S. Patent No. 6,750,864), Sang'udi et al. (U.S. Patent No. 6,480,194), and Thomas (U.S. Patent No. 6,490,719).

38. Anwar renders obvious independent claim 63 as follows:

"...and target variables..." at col. 48, lines 13-26.

"...receiving a request..." at col. 39, lines 44-50.

"...after receiving the request..." at col. 39, lines 44-50.

"...determining a subset of the dimension variables for splitting..." at col. 44, lines 31-34, col. 36, lines 19-23, and col. 20, lines 38-41.

"...wherein the splitting using the dimension variable subset..." at col. 20, lines 38-41, col. 44, lines 31-34, and col. 36, lines 19-23.

"...predicts the target variable..." at col. 5, lines 59-67, col. 6, line 1, and col. 48, lines 13-26.

"...wherein the subset of the dimension variables is automatically determined..." at col. 44, lines 31-34, col. 36, lines 19-23, and col. 26, lines 63-65.

"...displaying the determined dimension variables subset and the dimension variables..." at col. 5, lines 59-67, col. 6, line 1, col. 36, lines 19-23, and col. 44, lines 31-34.

"...can alter which of the dimension variables are included in the dimension variables subset..." at col. 29, lines 51-56, col. 36, lines 19-23, and 44, lines 31-34.

"...and generating a report..." at col. 10, lines 12-17 and col. 48, lines 19-20.

"...using the dimension variables subset as altered..." at col. 36, lines 19-23, 44, lines 31-34, and col. 29, lines 51-56.

"...whereby the generated report..." at col. 10, lines 12-17 and col. 48, lines 19-20.

"...is used for multi-dimension data analysis..." at col. 8, lines 20-22.

Anwar does not teach the use of input data and non-technical personnel.

39. However, Sang'udi teaches the input of data as follows:

"...storing input data that has dimension..." at col. 12, lines 13-16, col. 5, lines 49-51, and col. 9, lines 25-27.

"...to analyze the stored input data..." at col. 14, lines 19-22, col. 12, lines 13-16, and col. 5, lines 49-51.

"...the input data..." at col. 5, lines 49-51.

It would have been obvious to one of ordinary skill at the time of the invention to combine Sang'udi with Anwar to provide input data in order to have a source of data for large data sets to be used for the on-line analytical processing of data. Anwar and Sang'udi teach the use of related systems. They teach the use of computers, the use of databases, the use of networks, the use of multiple dimensions, the use of dimension variables, the use of targets, the use of objects, and the displaying of information.

Sang'udi does not teach the use of the system by non-technical personnel.

40. However, Thomas teaches the use of a system by non-technical personnel as follows:

"...from the non-technical individual..." at col. 26, lines 21-24.

"...so that the non-technical individual..." at col. 26, lines 21-24.

"...for the non-technical personnel..." at col. 26, lines 21-24.

"...by the non-technical individual..." at col. 26, lines 21-24.

"...by the non-technical individual..." at col. 26, lines 21-24.

It would have been obvious to one of ordinary skill at the time of the invention to combine Thomas with Anwar and Sang'udi to allow non-technical personnel to use the system in order to enhance the usability of the system and provide additional analysis tools to the non-technical personnel. Anwar, Sang'udi, and Thomas teach the use of related systems. They teach the use of computers, the use of databases, the use of networks, the use of targets, the use of objects, the use of models, and the displaying of information and Anwar and Thomas teach the use of decision trees.

Allowable Subject Matter

41. Claims 6 and 39 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The use of logworth statistic measures is not taught in the prior art.

Response to Arguments

42. Applicants' arguments filed 6 May 2005 have been fully considered but they are not persuasive. In the first argument for independent claim 1 and claims 2-33 on page 17, paragraph 1, the Applicants state:

"None of these passages teach, suggest or motivate that a decision tree processing module automatically determines the subset of the dimension variables as required by claim 1 in combination with its other limitations. Accordingly, the rejection of claim 1 is traversed, and claim 1 and its dependent claims are allowable."

The Examiner disagrees. This limitation is taught by a combination of teaching of Anwar as follows:

"...The present invention also provides data manipulation and analysis or mining techniques including at least one of the following techniques: a multidimensional **decision tree generator**; a cross-tab and cross-tab cell ranker (ACTG); a decision tree to cross-tab converter; a technique for identifying interesting nodes in a decision tree; a technique for constructing filters corresponding to the tree path leading to the interesting nodes; and a correlation technique..." at col. 3, lines 10-17.

"...Next, ACTG will evaluate all valid combinations **automatically to determine** the best cross-tab construct to present to the user..." at col. 26, lines 63-65.

"...In order to extract useful information (**subsets of** training data, statistical indices or the like) from a training set, the DMT has to perform data processing which is related to OLAP tasks..." at col. 44, lines 31-34.

"...The user can add dependent variables by grabbing a **variable (dimension** or member) from a list and drag-n-drop the new variable into the cross-tab wherever desire and the cross-tab control will add the dropped in variable to the cross-tab..." at col. 36, lines 19-23.

A combination of these teachings suggest the limitation of a decision tree generator (processing module) to automatically determine subsets of dimension valiables. Since independent claim 1 is rendered obvious by this argument, claims 2-5 and 7-33 are

dependent on independent claim 1 and no additional arguments have been provided for any of these claims then claims 2-5 and 7-33 are rendered obvious. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

43. In the second argument for independent claim 34 on page 17, paragraph 2, the Applicants state:

"Claim 34 is directed to a computer-implemented multi-dimension data analysis method. Claim 34 recites in combination with its other limitations that a subset of the dimension variables is automatically determined. Because the cited references (whether viewed alone or in combination) do not teach, disclose or suggest such limitations of claim 34, claim 34 and its dependent claims are allowable."

The Examiner disagrees. The second argument is essentially a repeat of the first argument as is applies to independent claim 34. For this reason, the response to the first argument is valid for the second argument. Since independent claim 34 is rendered obvious by the first argument and this argument, claims 35-38 and 40-62 are dependent on independent claim 34 and no additional arguments have been provided for any of these claims then claims 35-38 and 40-62 are rendered obvious. Claim 39 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

44. In the third argument for independent claim 63 on page 17, paragraph 3, the Applicants state:

"Claim 63 is directed to a computer-implemented method for multi-dimension data analysis by a non-technical individual. Claim 63 recites in combination with its other

limitations that a subset of the dimension variables is automatically determined. Because the cited references (whether viewed alone or in combination) do not teach, disclose or suggest such limitations, claim 63 is allowable."

The Examiner disagrees. The third argument is essentially a repeat of the first argument as is applies to independent claim 63. For this reason, the response to the first argument is valid for the third argument.

(10) Response to Argument

Examiner note: Pursuant to appellant's appeal brief (see pages 3 through 4, paragraph 4) stating that "independent claims 1, 34, and 63 are directed to a multidimensional data analysis techniques. Such techniques can be used to handle the large volumes of transactional data generated by enterprises that are generally stored in a data warehouse or an On-Line Analytical Processing (OLAP) system...The data sets could be so large as to have in some situations hundreds of dimension variables whose values are stored in the data store." Similarly, Anwar disloses "because a multidimensional database can contain a large number of dimensions...Thus, the ACTG of this invention provides mechanisms for the user to view the cross-tabs...The Automated Cross-Tab Generator (ACTG) of this invention is designed to run either on the same digital processing unit as the on-line analytical processing (OLAP) software...(col. 26, lines 41-58). Both systems are hence very analogous since they provide techniques to analyze the large volumes of transactional data stored in a data warehouse (multidimensional database) or on the OLAP system.

I. Anwar's reference discloses a decision tree process module that automatically determines a subset of dimension variables because Anwar teaches the Automated Cross-Tab Generator (ACTG) selects all dimensions and the ACTG will automatically evaluate to determine the best cross-tab construct to present to the user.

Appellant argues that Anwar reference fails to teach a decision tree process module that **automatically** determines a subset of dimension variables for splitting the input data. Instead, Anwar discloses determining a subset of dimension variables is a **manual** approach processing because users selects dimension variables.

The examiner respectfully disagrees with appellant's interpretation of the reference. Anwar not only teaches the user manually selects (splitting) dimension variables, but Anwar also discloses the step of selecting dimension variables could be done automated. That is, Anwar teaches the Automated Cross-Tab Generator (hereinafter "ACTG") selects all dimensions unless the user gives some instruction on what information is interest to the user (col. 26, lines 61-63). Thus, the ACTG would be equivalent to appellant's claim language "a decision tree processing module", so that Anwar further discloses if the user does not select a set of dimensions in the database (col. 26, lines 59-60), then the ACTG selects all dimensions, and next, **the ACTG will evaluate** all valid combinations **automatically to determine** the best cross-tab construct to present to the user (col. 26, lines 63-65). Accordingly, Anwar teaches a decision tree processing module that automatically determines a subset of dimension variables as required in claims 1, 34 and 63.

II). The Anwar's reference does not need to concern the same problem as the appellant's try to solve because recognizing another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious.

Appellant argues that Anwar reference is concerned with a different problem than that appellant's claim 1 is directed because for example, Anwar reference is concerned about using "a decision tree generator where the number of dependent variables is greater than one" (see appellant's brief page 8, paragraph 4).

In response to appellant's argument that Anwar reference is concerned with a different problem than that appellant's claim 1, the fact that appellant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). In this particular case, the feature that both Anwar and the appellant have been tried to solve is using the automatic method to split (selecting) a subset of the dimension variables in the multidimensional database (e.g., data warehouse, OLAP) because the OLAP stores large volumes of transactional data generated by enterprises.

Conclusion

The Anwar's reference discloses the claim language wherein the decision tree processing module automatically determines the subset of the dimension variables because Anwar teaches the ACTG selects all dimensions in the database, the

Automatic Cross-Tab Generator automatically evaluates the selected dimensions and present the best cross-tab construct to the user. Anwar reference does not need to concern the same problem that appellant's concern, because the fact that appellant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. In light of the foregoing arguments, the examiner respectfully requests the Honorable Board of Appeal and Interferences to sustain the rejection.

Respectfully submitted,

Debbie M. Le, Primary Examiner, AU 2168

November 8, 2006.

Conferees :

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